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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEGESSE, HENOK D

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,335	Applicant(s) SAKUMA ET AL.	
	Examiner HENOK LEGESSE	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/31/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 01/31/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

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35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1,2,4,9-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al (US 2002/0018097) in view of Matsumoto (US 2002/0021312 A1).

Regarding claims 1 and 13, Kitahara et al teaches an inkjet recording device, image forming apparatus, (printer 10, fig.1), comprising:

a conveyance belt (51, fig.9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) (fig.9; paragraph 0122, line 1) while rolling, said conveyance belt (51) being charged (charged by charger 55 in fig.9) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a recording unit (print head 3, fig. 1) configured to eject ink onto the recording medium (28) on the conveyance belt (18) (see paragraph 0075); and

a guide unit (74 of fig.16; 74" of fig. 20) arranged on the inner side of the conveyance belt (71,71") facing the recording unit (75) between two of the rollers (72 and 73), wherein said guide unit (74") includes a plurality of projecting stripes (see fig. 20 and 21; there are projecting stripes between grooves 74a") in contact with the conveyance belt (71", figs. 20,21), a top surface of said projecting stripes (figs.20,21) forming a guide surface (see figs.16,17,20,21; the guide units support the conveyance belt to provide a guide surface for the recording medium); and said guide surface comprising the top surface of said projecting

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stripes pushes (see figs.16,20,32) a portion of the conveyance belt (71,71") corresponding to said guide surface so that the pushed portion of the conveyance belt (71,71") approaches the recording unit (75) (see paragraph 147).

Kitahara et al fails to teach the projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt.

However, from the same endeavor Matsumoto teaches printing device (fig.2) having a guide unit (30, figs.1-3) that has plurality of projecting stripes (37) on the surface of the guide unit (30) and the projecting stripes (37) are arranged in a direction perpendicular to a rolling direction of the conveyance belt (31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the stripes of Kitahara et al in a direction perpendicular to a rolling direction of the conveyance belt as taught by Matsumoto. The motivation being, to provide a conveying apparatus that can suppress vibration of a conveying belt during conveyance and the influence of remaining wrinkle shapes on the belt due to rollers (see paragraph 72,0126,0129 of Matsumoto). Such arrangement of projecting stripes also would be obvious for one ordinary skilled in the art if for instance a belt having projections (such as 71a" in fig.20 of Kitahara et al) arranged in a direction perpendicular to a rolling direction of the conveyance belt, such belts better control slipping of belts during conveyance.

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Regarding claim 2, Kitahara et al further teaches the upper face of said guide unit (74, fig.16) is higher than the upper tangent line of two of the plurality of rollers (72 and 73) (see fig.16; paragraph 0148).

Regarding claim 4, Kitahara et al as modified by Matsumoto above substantially teaches the claimed invention, the top surface of the projecting stripes 37 has a predetermined width (see paragraph 109 of Matsumoto), except for the width of each of the projecting stripes is substantially less than or equal to 5 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width of each of the projecting stripes substantially less than or equal to 5 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 9 and 10, Kitahara et al further teaches a separation unit (claw 367 and claw 367 driving means, not shown, under the control of CPU 1 not shown in fig.52) (fig. 52; paragraphs 0343 and 0348) arranged on a downstream side relative to the pushed portion (see fig. 52, element 367, indicated by solid line, is arranged on a downstream side of head 355 along direction D7 of belt 354 pressing belt 354 against roller 353. Note also element 367 is arranged below a plane defined by rollers 353 and 352) for separating the recording medium [28] (fig.52) from the conveyance belt [354] (fig.52) after

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recording (paragraph 0344, note that in this paragraph there appears to be an error in the figure number, Fig.51 should be replaced with Fig. 52 in line 3 of this paragraph).

Regarding claim 11, Kitahara et al further teaches the separation claw (367, fig.52) is arranged to be contactable to and separatable from a surface of the conveyance belt (354, fig.52) [See fig.52 and paragraphs 0343-0349, element 367 can be driven in a forward-direction guide position as shown by solid line and opposite-direction guide position as shown by dashed line under the control of CPU 1 not shown in fig.52, see fig.1, in order to make possible to print on both surfaces of a recording medium].

Regarding claim 12, Kitahara et al teaches paper transportation system 50 G having a guide unit (74, fig.16) arranged on the inner side of the conveyance belt (71).

Kitahara et al further teaches a paper transportation system 50 K having a guide roller (78, 79) (fig.22) arranged on the inner side of and in contact with the conveyance belt (71).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the guide rollers of paper transportation system 50 K on the ends of the guide unit of paper transportation system 50 G along the rolling direction of the conveyance belt the motivation being the guide rollers suppresses the pitching of the transportation belt and also

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smoothen the transition of the belt portion going in and out of the guide unit during recording (paragraph 0162).

Regarding claim 16, Kitahara et al further teaches a sheet conveyance device (paper transportation system) (50A, fig. 9 and 50G, fig. 16), comprising:

a conveyance belt (51, fig.9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55 in fig.9) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9); and

a guide unit (74 of fig.16; 74" of fig. 20) arranged on the inner side of the conveyance belt (71,71") between two of the rollers (72 and 73), wherein said guide unit (74") includes a plurality of projecting stripes (see fig. 20 and 21; there are projecting stripes between grooves 74a") in contact with the conveyance belt (71", figs. 20,21), a top surface of said projecting stripes (figs.20,21) forming a guide surface (see figs.16,17,20,21; the guide units support the conveyance belt to provide a guide surface for the recording medium); and said projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt (in the recording device of Kitahara et al modified by Matsumoto as applied to claim 1; the projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt, see the rejection of claim 1 above), and said guide surface comprising the top surface of said projecting stripes pushes (see figs.16,20,32) a portion of the conveyance belt (71,71") corresponding to

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said guide surface so that the pushed portion of the conveyance belt (71,71") approaches the recording unit (75) (see paragraph 147).

5. Claims 5-8,14,15,17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al modified by Matsumoto as applied to claim 1 above, and further in view of Ishii et al (US 2003/0085978).

Regarding claims 5 and 14, Kitahara et al modified by Matsumoto as applied to claim 1 above, teaches an inkjet recording device, image forming apparatus, (printer 10, fig.1 of Kitahara et al), comprising:

a conveyance belt (51,fig.9 of Kitahara et al) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a recording unit (print head 3, fig. 1) configured to eject ink onto the recording medium (28) on the conveyance belt (18) (see paragraph 0075);

a guide unit (74 of fig.16; 74" of fig. 20) arranged on the inner side of the conveyance belt (71,71") facing the recording unit (75) between two of the rollers (72 and 73) (paragraph 0147);

said guide unit (74") includes a plurality of projecting stripes (see fig. 20 and 21; there are projecting stripes between grooves 74a") in contact with the conveyance belt (71", figs. 20,21), a top surface of said projecting stripes

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(figs.20,21) forming a guide surface (see figs.16,17,20,21; the guide units support the conveyance belt to provide a guide surface for the recording medium); and said projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt (in the recording device of Kitahara et al modified by Matsumoto as applied to claim 1; the projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt, see the rejection of claim 1 above), and said guide surface comprising the top surface of said projecting stripes pushes (see figs.16,20,32) a portion of the conveyance belt (71,71") corresponding to said guide surface so that the pushed portion of the conveyance belt (71,71") approaches the recording unit (75) (see paragraph 147).

Kitahara et al as modified by Matsumoto fails to teach a delivering rollers arranged to carry the recording medium conveyed by (from) the conveyance belt after recording so as to further convey the recording medium, a height where said delivering rollers carry the recording medium being lower than the height of an (the) upper face of said guide unit in contact with the conveyance belt.

However, Ishii et al teaches a delivering rollers (154,153) (fig.3) arranged to carry the recording medium (L) (fig.3) after recording so as to further convey the recording medium, a height where said delivering rollers (154,153) carry the recording medium being lower than the height of an (the) upper face of said guide unit (125) (fig.3) enables to prevent the growth of cockling of the recording medium during the transportation of the recording medium after recording.

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Therefore, since both Kitahara et al and Ishii et al teach transportation of recording mediums, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the delivering rollers of Ishii et al in the recording device of Kitahara et al modified by Matsumoto in such a way that the delivering rollers (154,153 of Ishii et al) arranged to carry the recording medium (28 of Kitahara et al) conveyed by (from) the conveyance belt (71 of Kitahara et al fig.16) after recording so as to further convey the recording medium (i.e. the delivering rollers are installed near the roller 73 in fig.16 of Kitahara et al), a height where said delivering rollers carry the recording medium being lower than the height of an upper face of said guide unit (74 of Kitahara et al fig.16) in contact with the conveyance belt. The motivation for this arrangement is to prevent the growth of cockling on the recording medium during transporting the medium after recording as suggested by Ishii et al (see paragraph 0009, fig.3 and the corresponding text of Ishii et al).

Regarding claims 6 and 15, Ishii et al further teaches a conveying roller (152, fig.1) in contact with a driver roller (151) to convey the recording medium to the recording unit (231), a height where said conveying roller (152) carries the recording medium being lower than the height of the upper face of said guide unit (122).

Regarding claim 7, Kitahara et al further teaches the height where the conveying roller (361, fig.52) carries the recording medium (28) is higher than the

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height where said delivering rollers (364) (fig.52; when paper 28 is transported in the direction of D7) carry the recording medium (28).

Regarding claim 8, Matsumoto further teaches recording medium (P, fig.9 from paper P supply unit 102) is inverted before being carried by the conveying roller (132).

Regarding claim 17, Kitahara et al modified by Matsumoto further modified by Ishii et al as applied in claim 5 above further teaches a sheet conveyance device (paper transportation system) (50A,fig. 9,and 50G, fig. 16 of Kitahara et al), comprising:

a conveyance belt (51, fig.9 of Kitahara et al) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a guide unit (74 of fig.16; 74" of fig. 20) arranged on the inner side of the conveyance belt (71,71") facing the recording unit (75) between two of the rollers (72 and 73) (paragraph 0147); and

a delivering rollers (152 and 153 fig.3 of Ishii et al) arranged to carry the recording medium (L) after recording so as to further convey the recording medium, a height where said delivering rollers (152 and 153) carry the recording medium being lower than the height of the upper face of said guide unit (125 of

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Ishii et al or 74, 74" of Kitahara et al) in contact with the conveyance belt (51 of Kitahara et al), wherein

said guide unit (74" of Kitahara et al) includes a plurality of projecting stripes (see fig. 20 and 21; there are projecting stripes between grooves 74a") in contact with the conveyance belt (71", figs. 20,21), a top surface of said projecting stripes (figs.20,21) forming a guide surface (see figs.16,17,20,21; the guide units support the conveyance belt to provide a guide surface for the recording medium); and said projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt (in the recording device of Kitahara et al modified by Matsumoto as applied to claim 1; the projecting stripes are arranged in a direction perpendicular to a rolling direction of the conveyance belt, see the rejection of claim 1 above), and said guide surface comprising the top surface of said projecting stripes pushes (see figs.16,20,32) a portion of the conveyance belt (71,71") corresponding to said guide surface so that the pushed portion of the conveyance belt (71,71") approaches the recording unit (75) (see paragraph 147).

Regarding claim 18, Ishii et al further teaches a conveying roller (152) (fig.1) in contact with a driver roller (151) to convey the recording medium to the recording unit (231), a height where said conveying roller (152) carries the recording medium being lower than the height of the upper face of said guide unit (122).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the conveying roller of Ishii et al in the recording device of Kitahara et al in such a way that conveying roller [152 of Ishii et al] arranged in contact with one of the rollers tensioning [72 of Kitahara et al fig.16] the conveyance belt [71 of Kitahara et al fig.16] to convey the recording medium to the recording unit [75 of Kitahara et al fig.16], a height where said conveying roller [152] carries the recording medium being lower than the height of the upper face of said guide unit [74 of Kitahara et al fig.16] in contact with the conveyance belt [71 of Kitahara et al fig.16]. One of the motivations is roller 72 of Kitahara et al (fig.16) drives the conveying roller, resulting in fewer parts that means lower cost of production. The other motivation for such an arrangement is to prevent the growth of cockling on the recording medium as the recording medium is transported towards the recording head by stretching the recording medium along the nearly convex shaped path towards the recording head (see paragraph 0009, fig.1 and the corresponding text of Ishii et al).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henok Legesse whose telephone number is (571)270-1615. The examiner can normally be reached on Mon - FRI, 7:30-5:00, ALT.FRI EST.TIME.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HL
02/16/2008

/LUU MATTHEW/

Supervisory Patent Examiner, Art Unit 2861